DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
CEMP-RT Washington, D.C. 20314-1000

ETL 1110-3-457

Technical Letter
No. 1110-3-457

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Engineering and Design
PLATE AND FRAME FILTER PRESS

1. Purpose. This engineer technical letter (ETL) was written to provide procedures f or engineering and design and to provide a format for documentation of the engineering and design of plate and frame filter press systems.

2. Applicability. This ETL is applicable to all HQUSACE elements, major subordinate commands (MSC), districts, laboratories, and field operating activities having military or civil works responsibilities. The engineering and design procedures are applicable to all Corps of Engineers projects. Documentation is specifically applicable to the hazardous, toxic, and radioactive waste (HTRW) programs and may be adapted to the requirements of other programs.

3. References. This ETL should be used in conjunction with design guidance listed in this paragraph as well as those listed in appendices.

a. ER 1110-345-700 Design Analyses.
b. ER 1110-345-720 Construction Specifications.
c. For other specific references see Appendix D.

4. Discussion. The attached appendices present the procedures and considerations associated with the engineering and design of plate and frame filter press systems.

a. Appendix A - Design Considerations. The information presented in this appendix provides a comprehensive overview design and engineering considerations for plate and frame filter press systems, including:

(1) Background information, theory, and definitions.

(2) Principles of operation for both fixed-volume and variable-volume filter press systems.

(3) A summary of filter press applicability, a comparison with other dewatering options, and typical operating performance.

(4) An overview of design considerations from sludge storage through disposal, and specific design considerations for the components of the filter press equipment and associated accessories and auxiliary systems.

(5) A summary of legal requirements and permits.

(6) Treatability testing requirements and procedures.

(7) Equipment sizing criteria and considerations.

(8) Construction materials and installation considerations.

(9) Operation and maintenance considerations.

(10) Design and construction package requirements.

b. Appendix B - Design Calculations. This appendix presents the types calculations and documentation required in the design of filter press applications.

c. Appendix C - Checklist for Design Documents. This appendix presents a checklist of design documents for filter press systems including the design analysis, plans, guide specifications, and operation and maintenance manuals.

d. Appendix D - Bibliography. This appendix provides references and sources of information for the design considerations presented throughout the ETL.

e. Appendix E — Design Examples. This appendix presents a summary of the design approach for plate and frame filter press applications and three illustrative design examples.

5. Action. Each U.S. Army Corps of Engineers design element will be responsible for incorporating guidance into HTRW or military construction designs. This ETL will be considered as the design guidance for plate and frame filter press installations.

6. Implementation. This information will be used by USACE personnel responsible for the design and review of HTRW projects utilizing the plate and frame filter press technology. This information will be incorporated into HTRW projects which have

not completed 90 percent stage of design. This ETL will have routine application to military construction projects as identified in paragraph 6c, ER 1110-345-100.

FOR THE DIRECTOR OF MILITARY PROGRAMS:

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5 Appendices
APP A - Design Considerations
APP B - Design Calculations
APP C - Checklist for Design Documents
APP D - Bibliography
APP E - Design Examples